



H1N1:

North Carolina Responds

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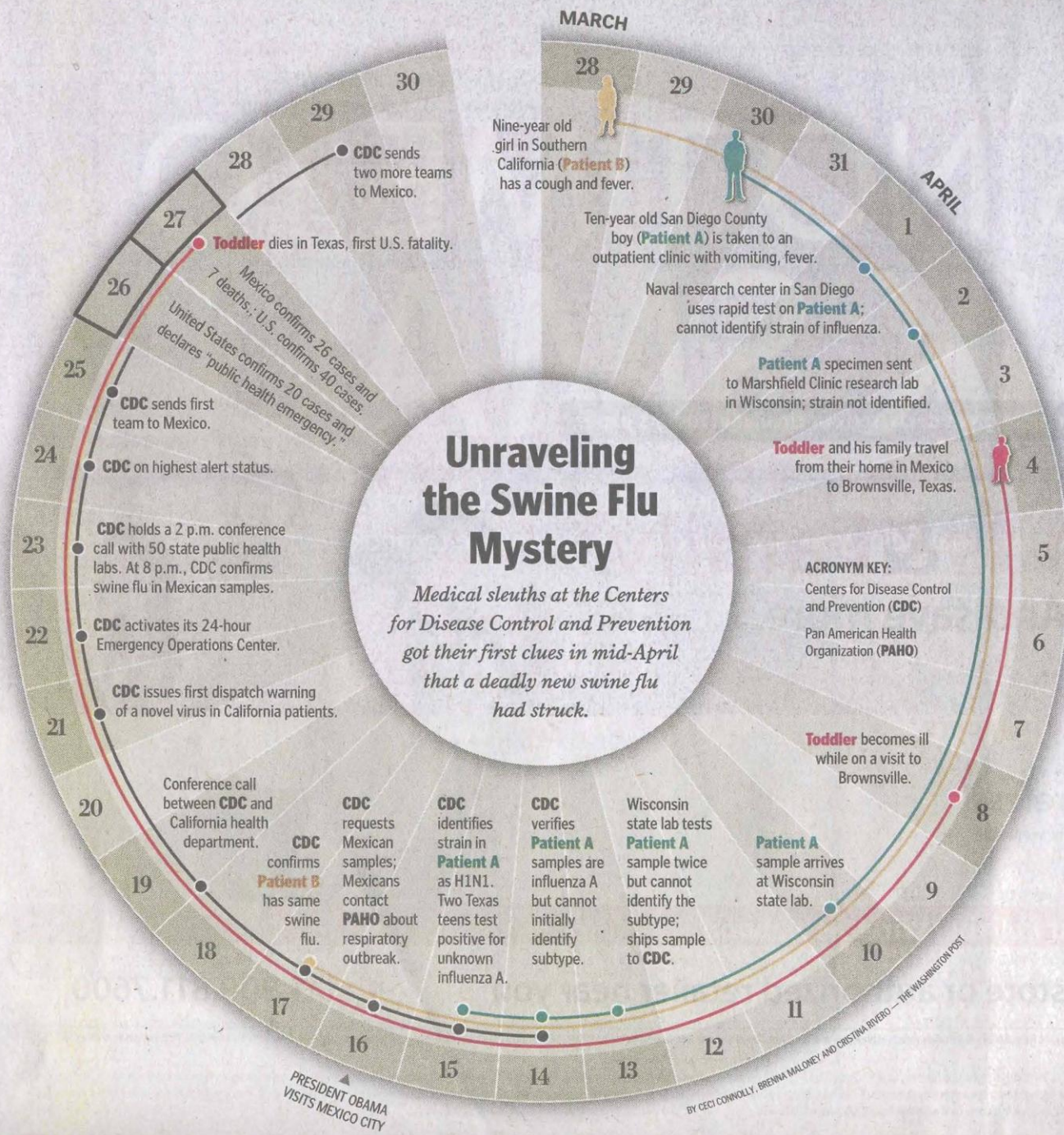
NC DPH- PHP&R

One Medicine- 2009

Unraveling the Swine Flu Mystery

Medical sleuths at the Centers for Disease Control and Prevention got their first clues in mid-April that a deadly new swine flu had struck.

ACRONYM KEY:
Centers for Disease Control and Prevention (CDC)
Pan American Health Organization (PAHO)



- April 26
- Declaration of Public Health Emergency

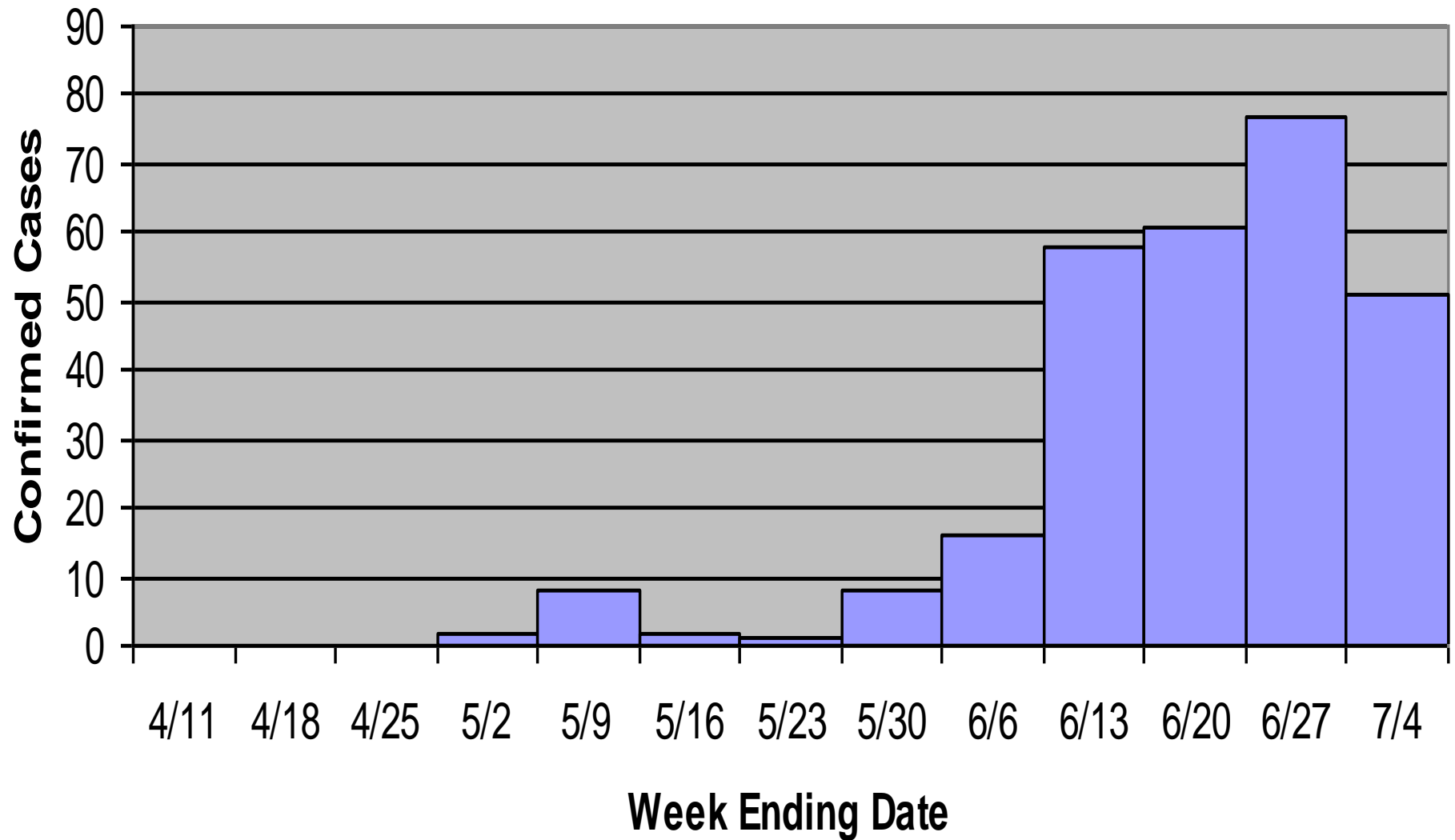


First Wave

- Epidemiology
 - Descriptive
 - Develop/Implement Mitigation Strategies
- Laboratory Investigation



NC H1N1 Cases by Week of Report



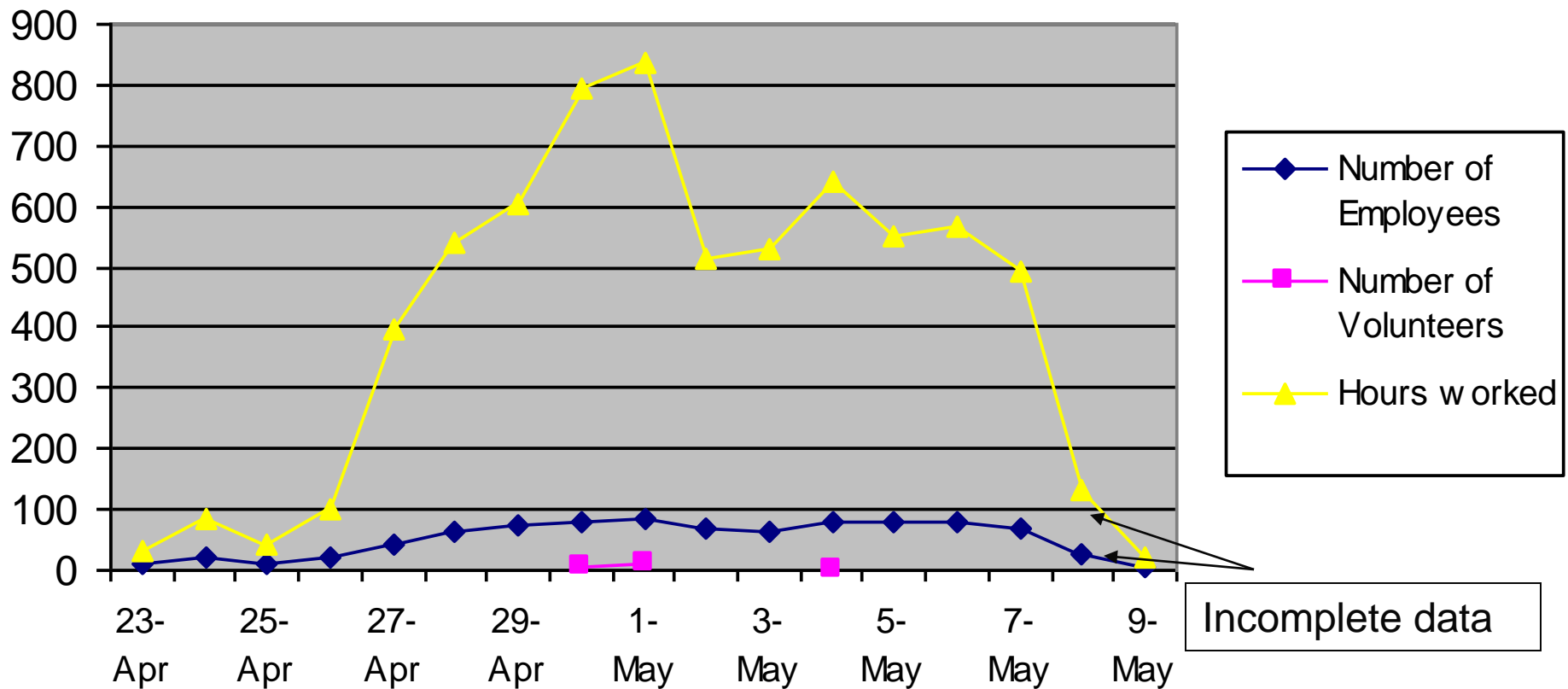
The First Wave

April 24-May 15

- Initial case identification, isolation, laboratory testing, guidance adaptation and development, information sharing, receipt of Strategic National Stockpile
- 8090 total hours of service by over 200 people
- This included staff from the Division of PH, Public Health Regional Surveillance Teams, NC Department of Agriculture & Consumer Services, NC Emergency Management, students from UNC School of Public Health and NCSU College of Veterinary Medicine and other agencies.
- Total costs ~ \$1.9 m in personnel costs, \$160,000 in equipment/non-personnel costs.
- Does not include countless hours and effort at the local level.

Staff Levels

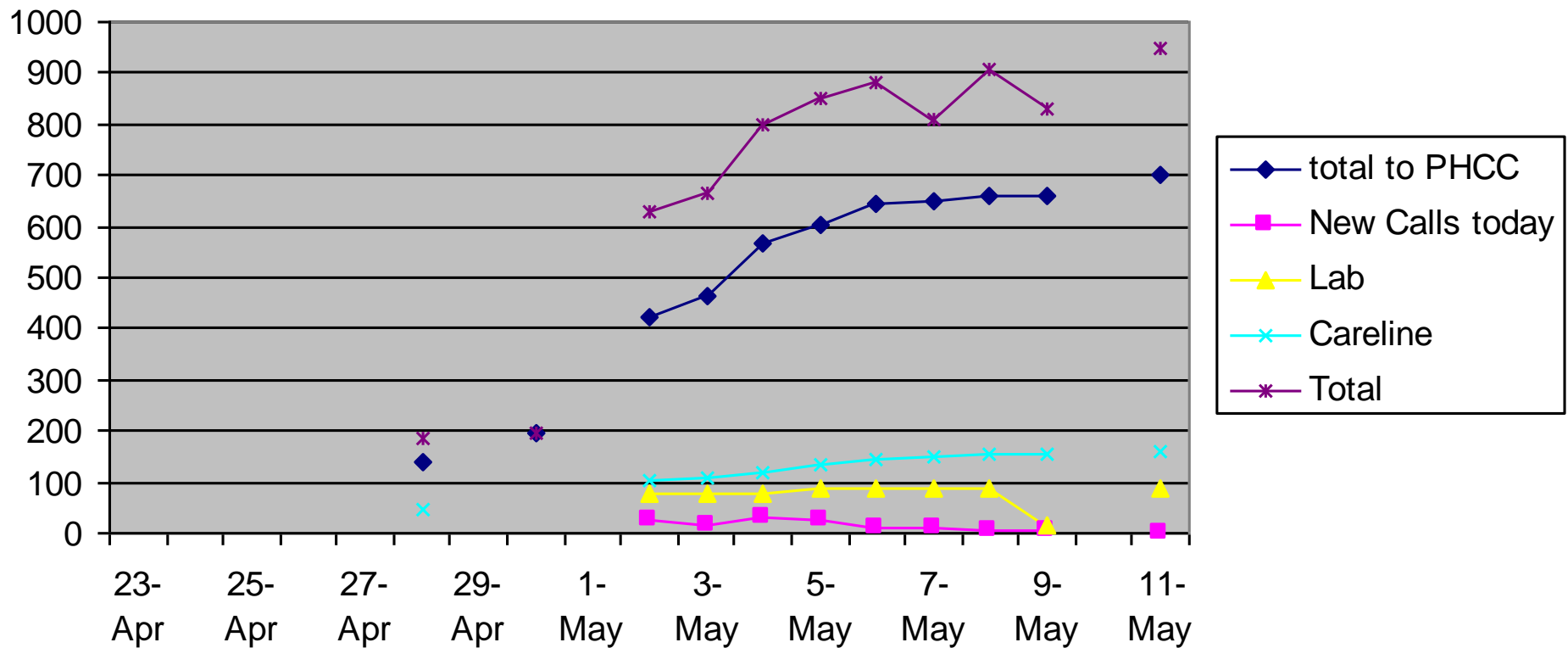
PHCC and Lab Staffing



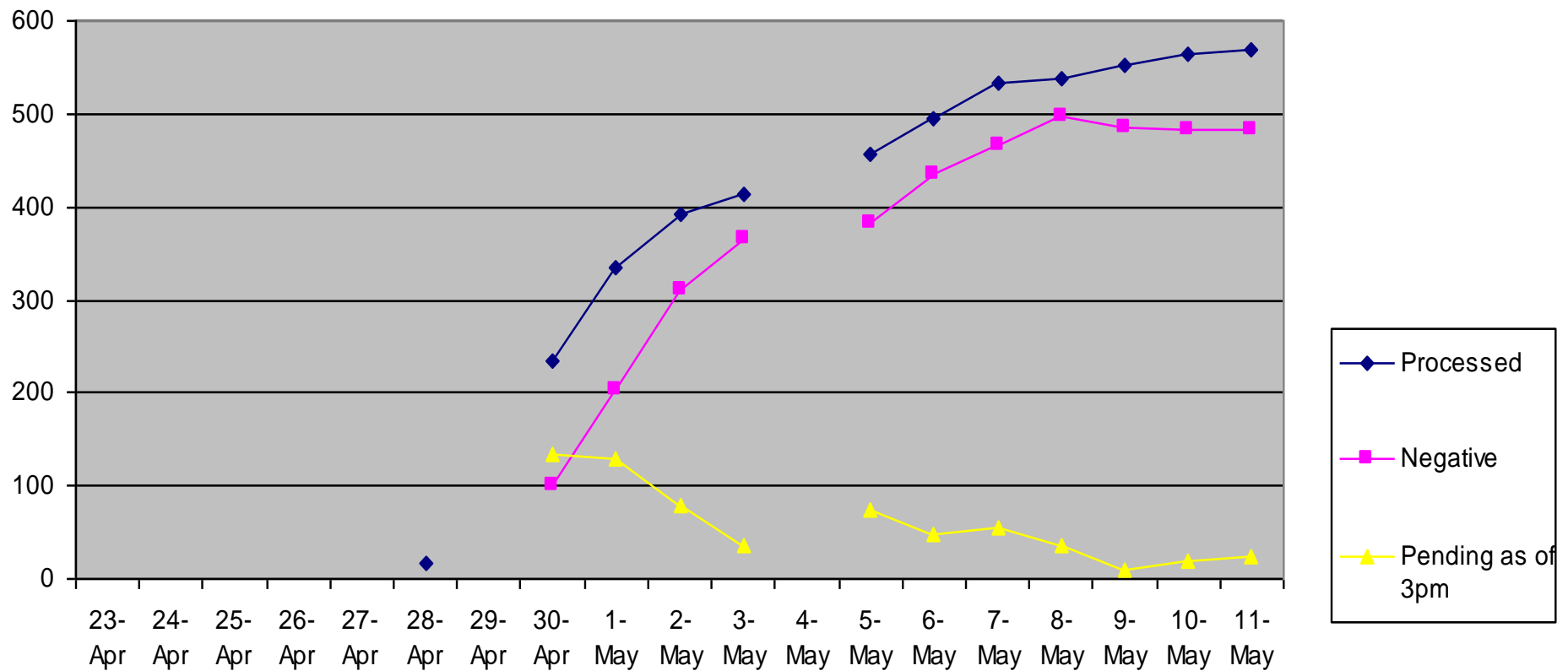
Uniquities

- Call center
- Gov's office
- Lab liaison
- Migrant Workers
- Strategic National Stockpile (SNS)


Call Center Volumes



Lab Specimens Accessioned



- Over 250,000 migrant farm workers come to North Carolina each year; largely from Mexico and Central America.
- NC Growers Association
 - Sponsor 3% from Mexico on H2A visas.
 - Know where the worker is working and where the worker is living.
 - Provided minimal medical screening, information about H1N1 for the workers and the growers and follows the workers for arising health issues.
- The remaining 97% come from a variety of countries through crew chiefs who act as agents.
- Several state agencies “touch” these workers mostly through the crew chiefs but also through the growers:
 - Department of Agriculture
 - Department of Labor
 - Employment Security Commission
 - Cooperative Extensions
- The American Consulate in Mexico closed for visa services until May 15, 2009.

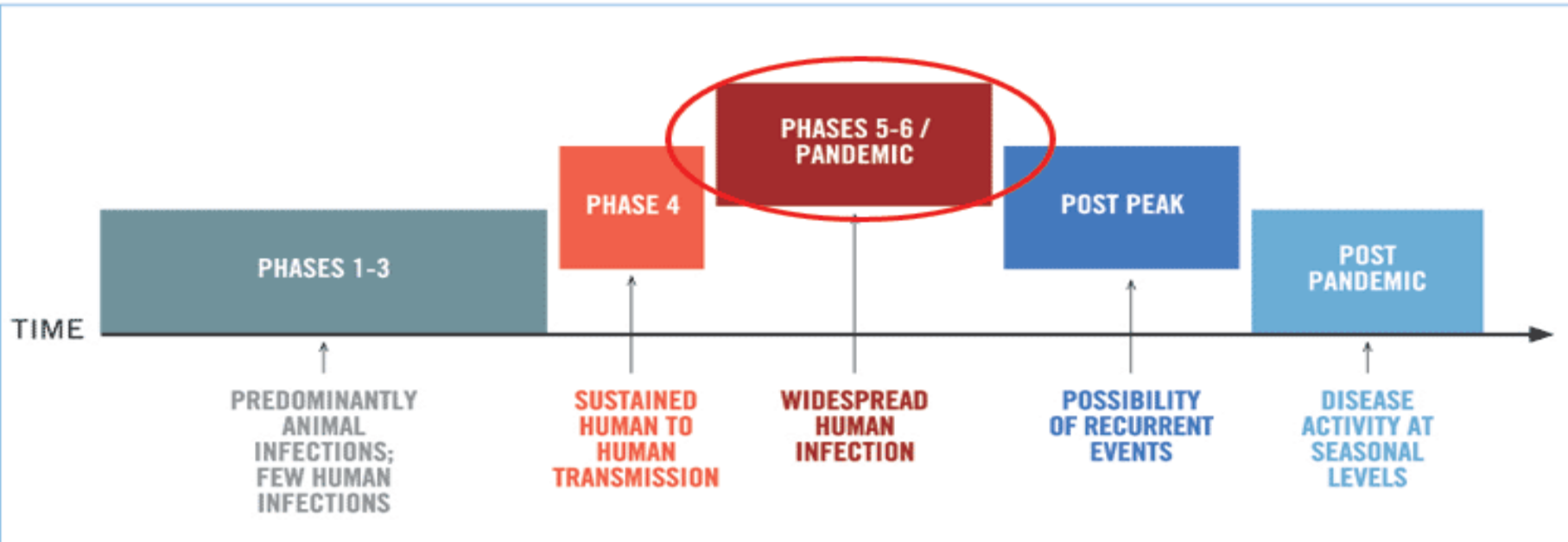
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- Coordinated with North Carolina DA&CS, Office of Minority Health and Health Disparities and the Office of Rural Health and Community Care Programs (NC DHHS).
 - Provided outreach to growers, community health centers, Local Health Departments and other state agencies.
 - Culturally compatible health information in multiple languages and
 - Resources for health care.
 - Distributed antiviral medications from the SNS
 - Through Local Health Departments, especially for those that do not have the resources to fill prescriptions at pharmacies.
 - Materials regarding evaluation and management of potentially infected people were pushed out to community health centers and other providers.
 - Migrant Clinician Network opened its doors to anyone who is ill with influenza-like illness for evaluation and testing.

Is this a pandemic?

- WHO elevated status to Phase 6
 - June 11, 2009

who.int

PANDEMIC INFLUENZA PHASES



WHO Phase	Inter-Pandemic Period		Pandemic Alert Period			Pandemic Period
	1	2	3	4	5	6

Inter-Pandemic: New virus in animals, no human cases

Phase 1: Low risk of human cases

Phase 2: Greater risk of human cases

Pandemic Alert: New virus causes human cases

Phase 3: No or very limited human-to-human (h-to-h) transmission

Phase 4: Evidence of increased h-to-h transmission

Phase 5: Evidence of significant h-to-h transmission

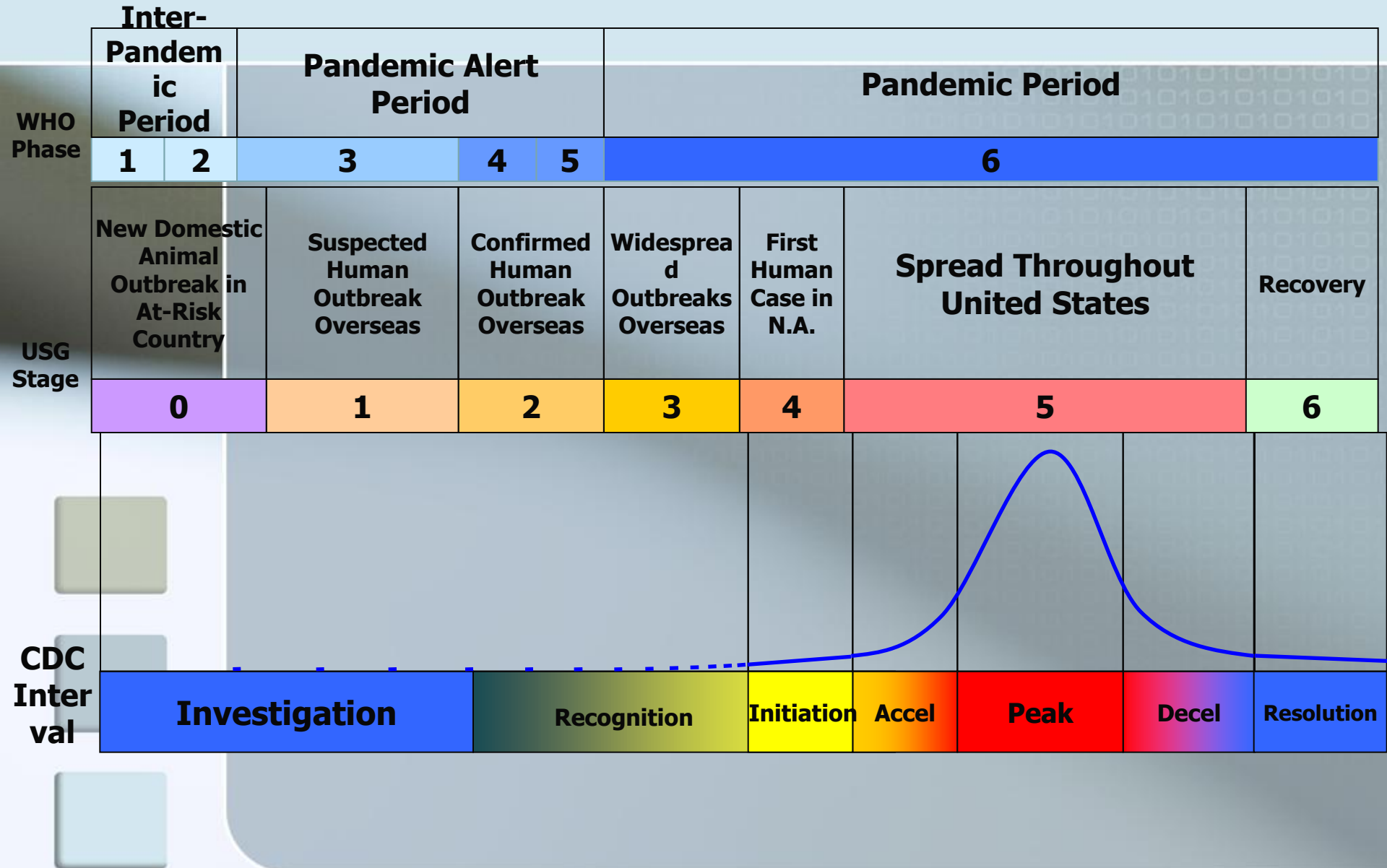
Pandemic:

Phase 6: Efficient and sustained h-to-h transmission

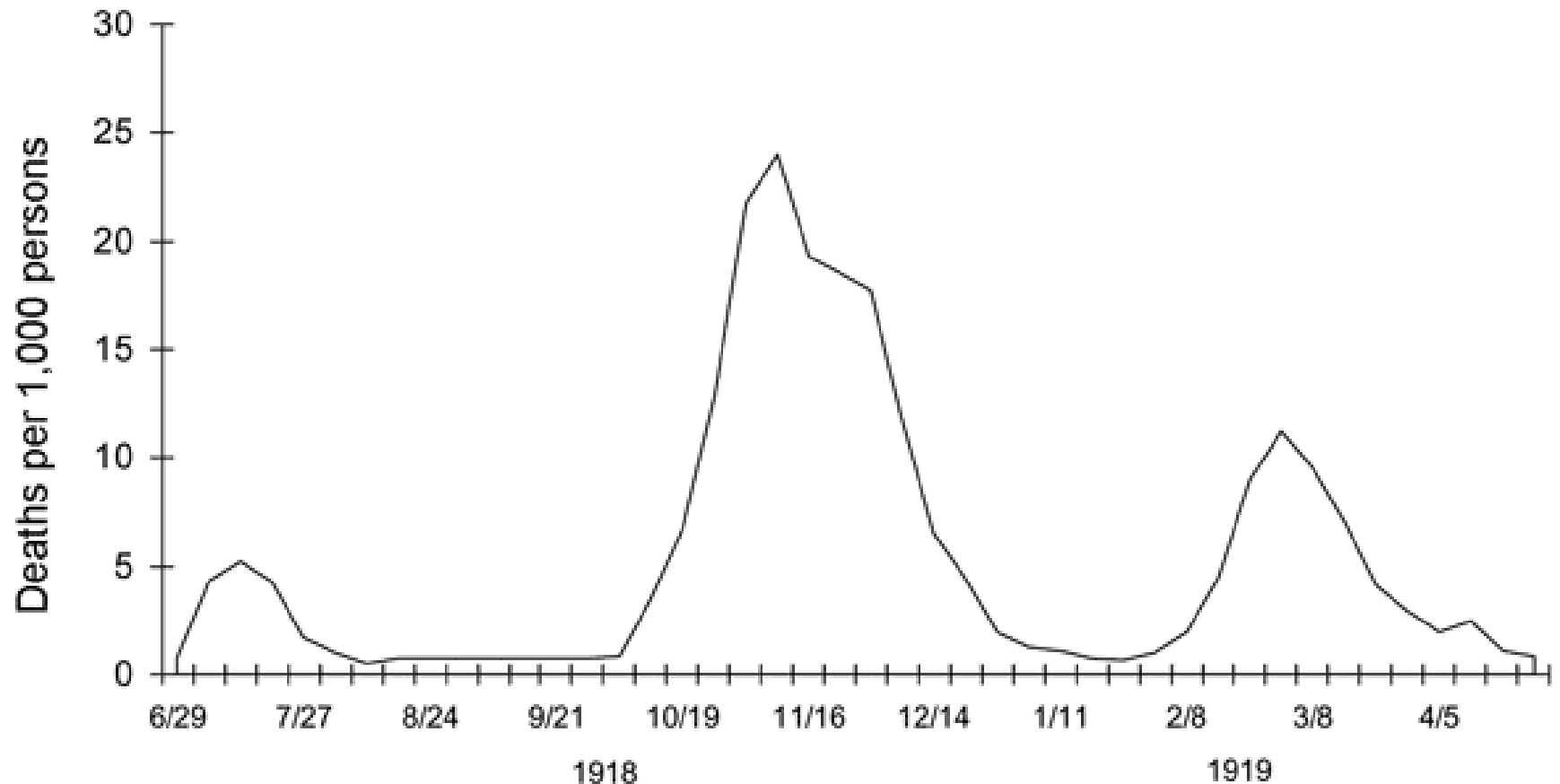
WHO Phase	Inter-Pandemic Period		Pandemic Alert Period			Pandemic Period		
	1	2	3	4	5	6		
	New Domestic Animal Outbreak in At-Risk Country		Suspected Human Outbreak Overseas	Confirmed Human Outbreak Overseas	Widespread Outbreaks Overseas	First Human Case in N.A.	Spread Throughout United States	Recovery
USG Stage	0		1	2	3	4	5	6

- 0) New domestic animal outbreak in at-risk country
- 1) Suspected human outbreak overseas
- 2) Confirmed human outbreak overseas
- 3) Widespread outbreaks overseas
- 4) First human case in North America
- 5) Spread throughout the United States
- 6) Recovery and preparation for subsequent waves

Intervals, Triggers, and Actions



Pandemic Waves

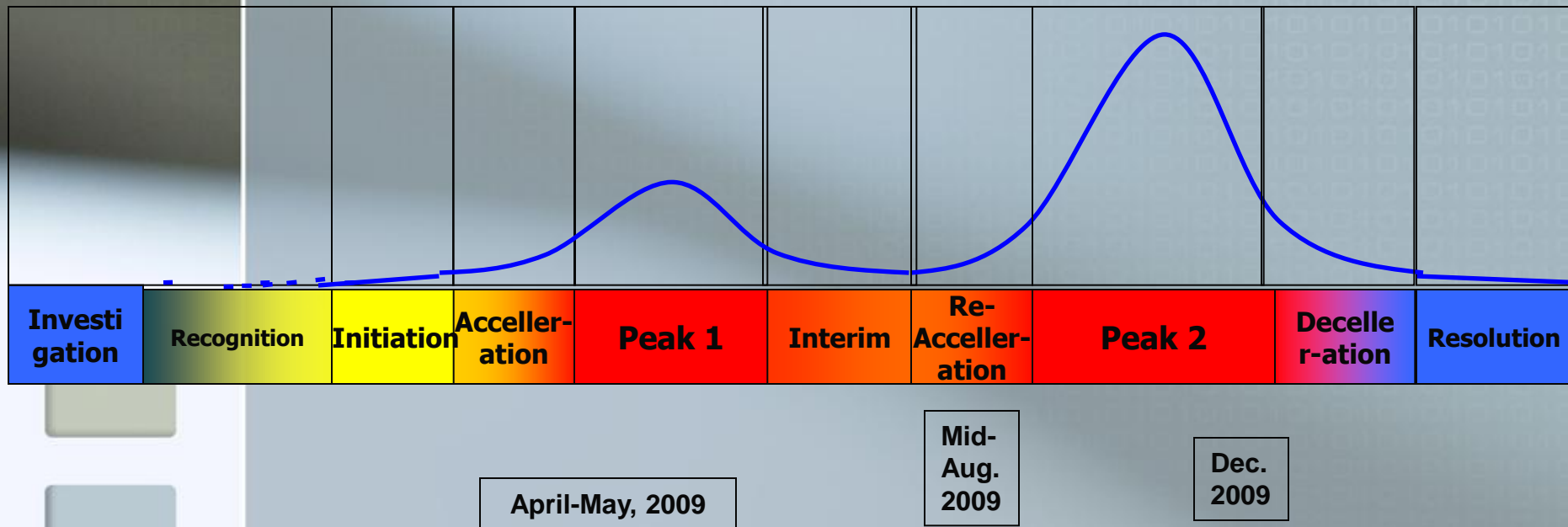


Weekly combined influenza and pneumonia mortality, United Kingdom, 1918–1919.

-JK Taubenberger and DM Morens. *1918 Influenza: the Mother of All Pandemics*. EID, Jan. 2006

Pandemic Severity Index			
Interventions* by Setting	1	2 and 3	4 and 5
Home Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend†§	Recommend†§	Recommend†§
Voluntary quarantine of household members in homes with ill persons¶ (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider**	Recommend**
School Child social distancing -dismissal of students from schools and school based activities, and closure of child care programs -reduce out-of-school social contacts and community mixing	Generally not recommended Generally not recommended	Consider: ≤4 weeks†† Consider: ≤4 weeks††	Recommend: ≤12 weeks§§ Recommend: ≤12 weeks§§
Workplace / Community Adult social distancing -decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings) -increase distance between persons (e.g., reduce density in public transit, workplace) -modify postpone, or cancel selected public gatherings to promote social distance (e.g., postpone indoor stadium events, theatre performances) -modify work place schedules and practices (e.g., telework, staggered shifts)	Generally not recommended Generally not recommended Generally not recommended Generally not recommended	Consider Consider Consider Consider	Recommend Recommend Recommend Recommend

CDC Interval



Adapted from CDC Interim Guidance on Use of Intervals, Triggers, and Actions in CDC Pandemic Influenza Planning, April, 2009


Second Wave



- Re-congregation of primary risk group, primary reservoir and primary vectors
 - Students!
- Stood up Incident Management Team in DPH on September 15.
- Stood up SERT H1N1 committee the next week.

Second Wave

- Mitigation
 - Vaccination
 - Community measures
 - PPE
- Surveillance
 - Measure outcomes of mitigation
 - Scope
- Response related to scope

Hospitals

 State Medical Asset Resource Tracker Tool

Choose Report Values

(You must choose at least one, use 'CTRL' to select more than one from each list)

Bed Types

- Burn Beds
- Emergency Department Beds
- Floor Beds: Adult
- Floor Beds: Pediatric
- ICU Beds: Adult Cardiac
- ICU Beds: Adult General
- ICU Beds: Adult Neurosurgery
- ICU Beds: Adult Surgery
- ICU Beds: Neonatal
- ICU Beds: Pediatric
- Isolation Capable Beds
- Nursery (All except Neonatal ICU)
- Operating Room Beds
- Psych Beds: Adult
- Psych Beds: Pediatric
- Rehabilitation/Long Term Beds

Resource Capabilities

Availabilities

- Isolation Rooms
- Available Ventilators
- Total Ventilators
- Negative Pressure Space
- Morgue Capacity
- Ambulatory Decontamination Capability
- Non-ambulatory Decontamination Capability
- Level A Protective Suits
- Level B Protective Suits
- Level C Protective Suits
- N95 Masks: Small Size
- N95 Masks: Regular Size

Drug Dosages

- Atropine (not including Mark 1 Kits)
- British Anti-Lewisite (BAL)
- Ciprofloxacin
- Cyanide Kit
- Diazepam / Lorazepam
- Doxycycline
- Mark 1 Kits
- Oseltamivir (Tamiflu)
- Pralidoxime (2-PAM) (Not including Mark 1 Kits)
- Zanamivir (Relenza)

Surge Capacities

- Adult Floor Patients (Yellow)
- Adult ICU Patients (Red)

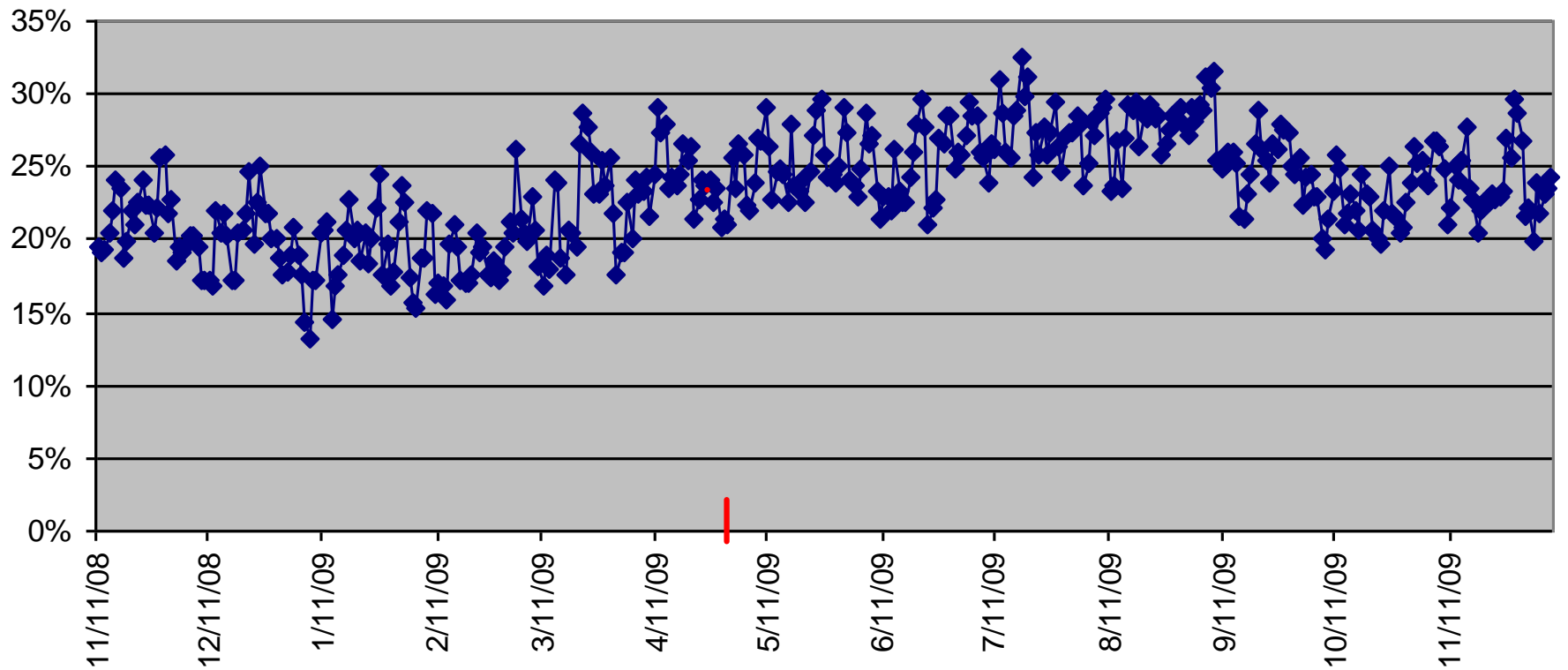
Dialysis Machine Types

- Fixed
- Portable

Dialysis Capacities

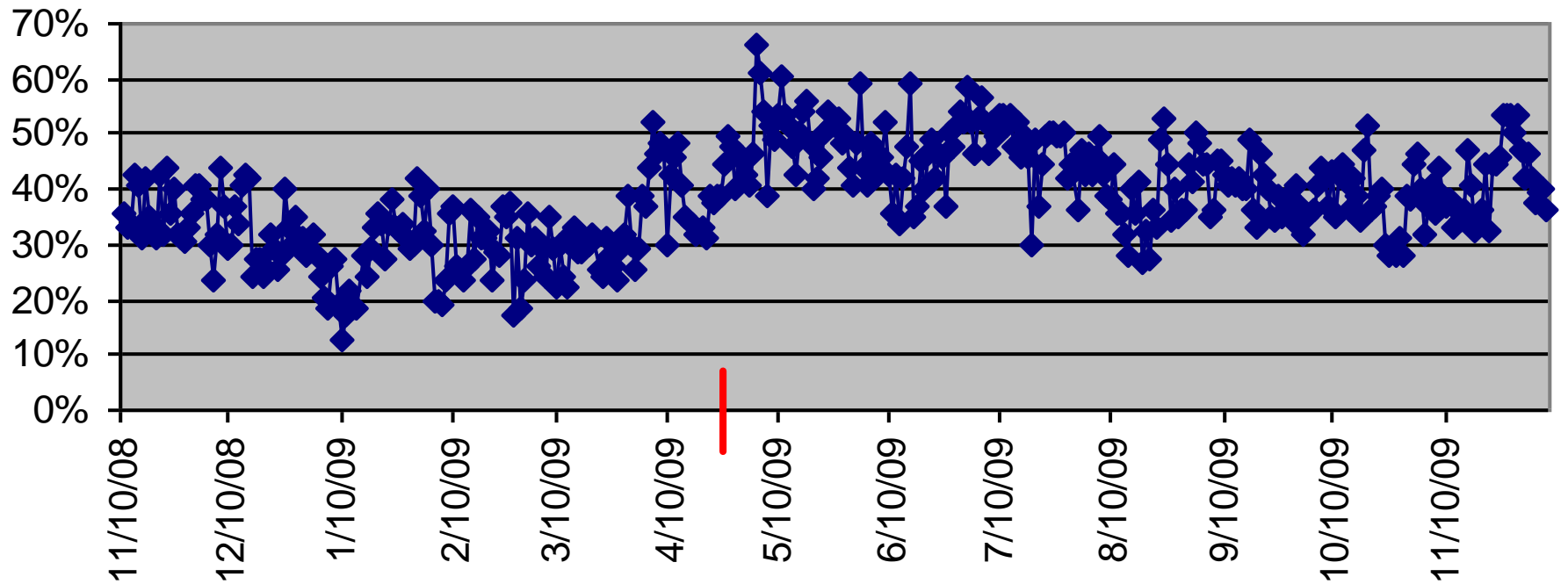
- Dialysis Seats Per Day

Adult ICU Percent Full



Pediatrics ICU

Percent Full

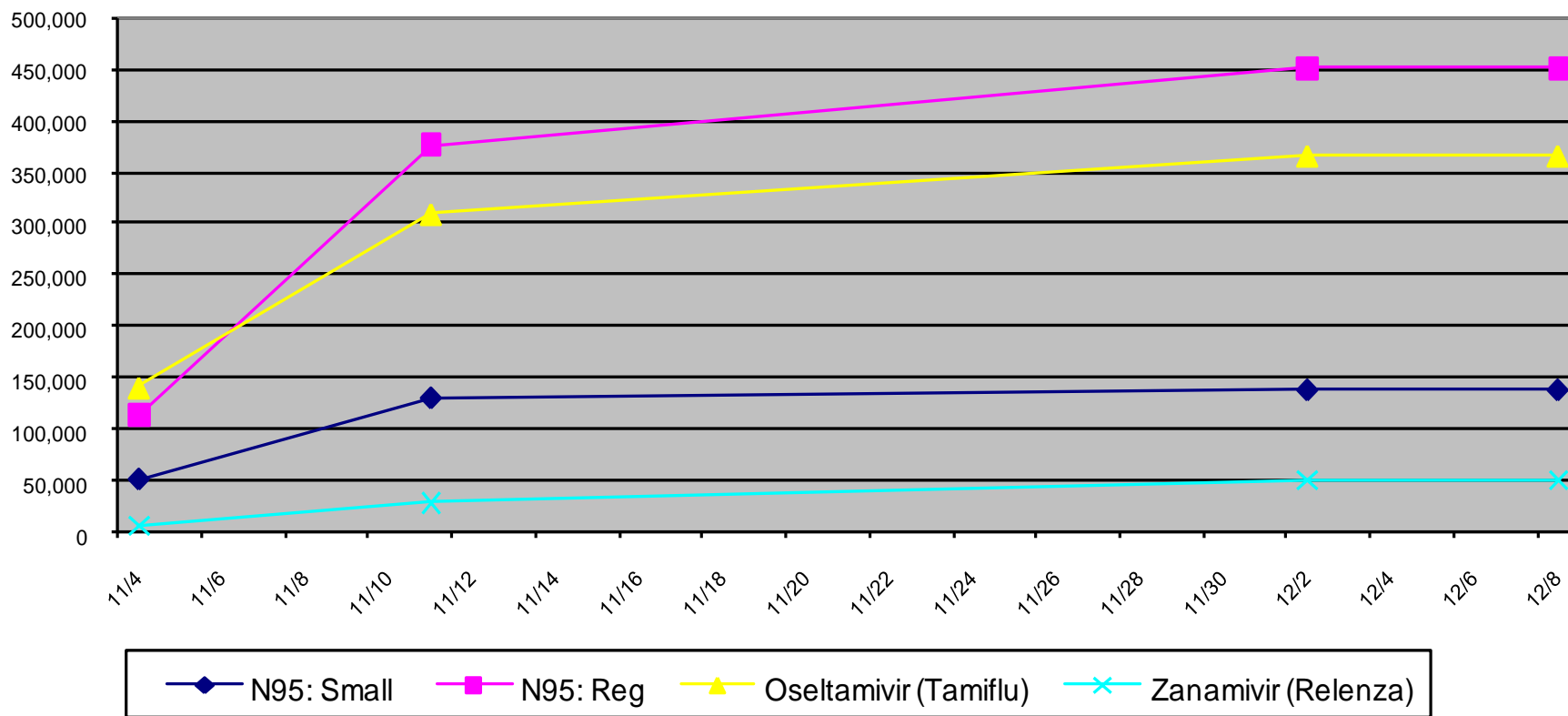


PPE and Antiviral Medications

Trauma Region Nov 4, 2009	N95: Small	N95: Reg	Oseltamivir (Tamiflu)	Zanamivir (Relenza)
Capital	3075	7550	63092	1551
Duke	1465	2565	1973	563
Eastern	9668	30232	30141	2167
Metrolina	2937	9866	17545	11
Mid-Carolina	11973	11393	4784	725
Mountain Area	4162	8185	1845	130
Southeastern	4558	30247	12972	288
Triad	13857	13364	9132	499
Totals	51695	113402	141484	5934

Statewide PPE and Antiviral Medications

Statewide November-December, 2009



Utilization of Scarce Resources

- NC IOM report on ethics (2007)
- NC Medical Society Committee
- Background of NY State and US Veterans Affairs plans
- Overall most plans attempt to predict mortality using accepted multi-organ system failure scales
- Findings:
 - Most patients critically ill did not have multi-organ system failure
 - “rate limiting” resource was ECMO

Pandemic Mitigation Strategies

- Nonpharmaceutical interventions
 - Hand hygiene, respiratory etiquette
 - Isolation and quarantine
 - Social distancing (school dismissal, cancellation of large gatherings, teleworking, etc.)
- Vaccination
- Targeted antiviral treatment and prophylaxis

Pandemic Mitigation Strategies

- Mitigation strategies guided by severity of illness
 - H1N1 2009 had mortality rate of ~0.3%-0.5%
 - Guidance issued for specific settings
 - Schools
 - Camps
 - Workplace
 - Health care facilities
 - Long-term care facilities

H1N1 Vaccine Strategy

- Use of providers as surge capacity and to reach target groups
- LAIV vs multi-dose vials vs single dose pre-filled syringes
- Multiple manufacturers with multiple licensing issues
- Roll out

Pandemic Vaccine:

Target Groups

- Pregnant women
- People who live with or care for children younger than 6 months of age
- Health care and emergency medical services workers
- Persons 6 months through 24 years of age
- People 25 through 64 years of age at high risk for complications of influenza

H1N1 Pandemic Vaccination

- Medical Risk Model NOT Infrastructure Protection Model
- Target Groups NOT Priority Groups
- Would predictably reach a point where demand from target groups is met and then would be opening to the general public